INSTALLATION INSTRUCTION AND SERVICE MANUAL

Actuator/Trailer Dealer - Please provide these instructions to the consumer. Consumer - Read and follow these instructions. Keep them with the trailer for future reference.

TITAN 13" x 2 1/2" BRAKES

DUO SERVO and FREE BACKING





INSTALLATION INSTRUCTIONS

1. Brake Mounting Flange

To assure correct brake action, the mounting flange must be square and concentric with the axle spindle. A flange that is not properly installed will contribute to rapid lining wear and improper brake action.

Use a flange welding fixture to properly position the flange for welding. Bolt the flange to the welding fixture securely with all bolts.

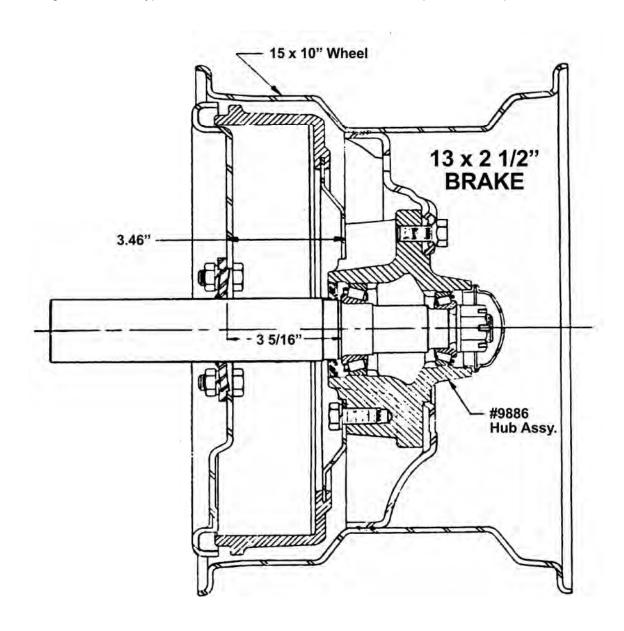
Install the fixture (and flange) onto the spindle and tighten spindle nut. If flange is being installed on a round axle, be certain the two top holes are horizontal when the axle is installed.

It is best not to make a continuous weld around the flange. First, tack weld on all four sides between the bolts. Follow this with a full weld up each side of the axle. It is usually not advisable or necessary to weld across the top and bottom of the axle. The bottom of the axle is its most highly stressed area and a weld at this point will weaken the axle. Allow the axle, spindle and flange to cool before removing welding fixture.



INSTALLATION (cont.)

The drawing below is of a typical installation. The actual installation will depend on the spindle, hub and wheel used.



2. Installing Brakes

Place the brake against spindle flange. Mounting bolts are supplied with the brake. Nuts and lock washers are provided. In mounting the brake, be sure the hydraulic wheel cylinder is at the top.

Brakes are also marked as "RIGHTS" and "LEFTS". The brake designated as "LEFT" travels on the drivers side of the road.

INSTALLATION (cont.)

3. Installing Brake Drum

When the brakes have been correctly assembled to the axle flanges, the hub and drum assemblies may be mounted on the axle spindle.

Pack the inside bearing with suitable wheel bearing grease. Force grease through and around the rollers. Place the bearing in the hub and install the grease seal flush with the end of the hub using an arbor press or soft mallet. Remove excess grease.

To avoid injury to bearing seal, lubricate seal seat prior to putting on the brake drum. Grease pack and install the outer bearing on spindle. Place flat washer and spindle nut on spindle. Turn drum as you tighten nut. When a pronounced drag is felt in the bearings, back off nut one complete slot and install cotter pin and dust cap.

△WARNING

DO NOT pack hub full of grease. Excessive grease may leak into brake drums causing brake failure.

Wheel may now be mounted on the trailer.

Adjusting Brakes

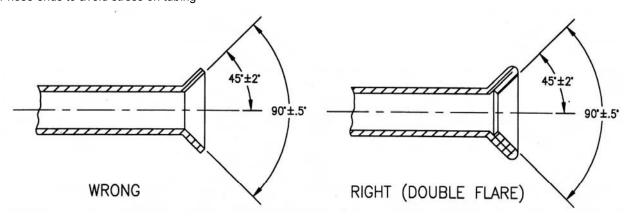
Before removing the jacks, adjust the brakes. TITAN "Surg-O-Matic" trailer brakes incorporate a patented "Back up" feature that makes it necessary to rotate the wheels in the direction of <u>forward rotation only</u> when making adjustments.

The brake adjustment nut is located behind a slot at the bottom of the backing plate. Tighten until you cannot rotate wheel by hand, then back off the adjustment 1 a to 12 notches.

ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY.

5. Hydraulic Lines

Before Use care in forming tubing to avoid sharp bends or kinks. Double flare steel tubing to assure tight leak proof connections. Anchor all hydraulic lines at two foot intervals to prevent chafing and vibration. Use hydraulic rubber hose at points of flexing. Anchor hose ends to avoid stress on tubing



INSTALLATION (cont.)

Bleeding the System

The first requisite for safe, sure hydraulic braking is the use of quality brake fluid. Use only DOT-3 or DOT-4 heavy duty fluid. If pressure bleeding equipment is available, follow the manufacturer's instruction in bleeding the system.

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Use only fresh brake fluid from a sealed container. DO NOT reuse fluid. After filling and bleeding, remember to refill the actuator. Failure to maintain an adequate fluid level may cause brake failure.

If system must be bled manually, proceed as follows: Fill master cylinder with fluid. Install bleeder hose on first wheel cylinder to be bled, (if tandem axle trailer, bleed rear axle first). Have loose end of hose submerged in brake fluid in glass container to observe bubbling.

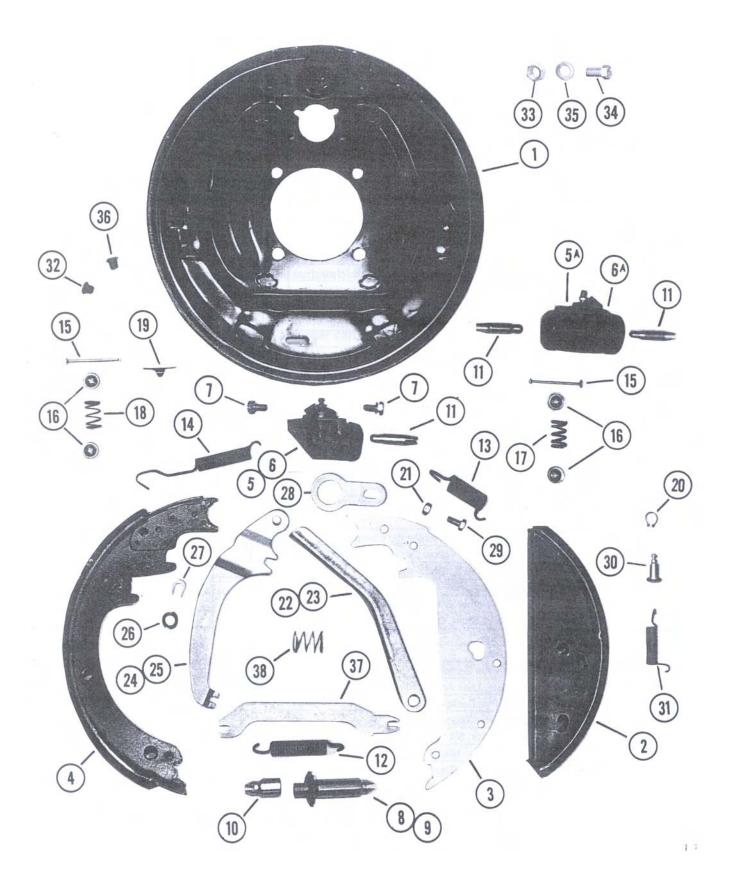
By loosening the bleeder screw located in the wheel cylinder one turn, the system is open to the atmosphere through the passage drilled in the screw. Pump actuator with long steady strokes. The bleeding operation is completed when bubbles no longer rise to the surface of the fluid. Be sure to close bleeder screw securely.

Repeat bleeding operation at each wheel cylinder. During the bleeding process, replenish the brake fluid, so the level does not fall below the 1/2 full level in the master cylinder reservoir. After bleeding is completed, make sure master cylinder is filled to 3/8 inch below the top of the reservoir, and filler cap 'securely in place.

↑WARNING **↑**

Saltwater, granular fertilizers and other corrosive materials are destructive to metal. To prolong the life of a braking system used under corrosive conditions, we recommend that the actuator be flushed periodically with a high pressure water hose. Be sure to re-grease bearings and oil all moving parts after the unit has dried. At the end of the season, when the unit is to be stored, remove the brake drums and clean inside the brakes. Pack wheel bearings before drum is installed.

13" BRAKE PARTS DIAGRAM



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13" BRAKE PARTS LIST

			NO. REQUIRED PER ASSEMBLY		
REF. NO.	TITAN PART NO.	DESCRIPTION	FREE BACKING	DUO SERVO	DUO SERVO
				Hydr Oil	Hydr Oil
				,	Hi Pressure
		Complete Brake - Right	0965100	1834500	4718600
		Complete Brake - Left	0965200	1834600	4718700
1	2473700042	Backplate Assembly	1	1	1
2	0973900	Brake Shoe, Front	1		'
3	0974500	Shoe Lever	1		
4	0977500	Brake Shoe, Rear	1	2	2
5	0977600	Wheel Cylinder, Right, Greased and Painted	1		_
5-A	1835000	Wheel Cylinder, Right, Duo Servo, Hydr Oil		1	
5-B	4719000	Wheel Cylinder, Right, Hi Press, Duo, Hydr		•	1
6	0977600	Wheel Cylinder, Left, Greased and Painted	1		
6-A	1835100	Wheel Cylinder, Left, Duo Servo, Hydr Oil		1	
6-B	4719200	Wheel Cylinder, Left, Hi Press, Duo, Hydr		-	1
7	2345700	Screw & Lockwasher	2	2	2
8&9	2332400	Adjusting Screw & Pivot Nut	1	1	1
		.,,			
10	0978200	Socket - Adjusting Screw	1	1	1
11	0978300	Push Rod - Wheel Cylinder	1	2	2
12	0978400	Spring - Adjusting Screw, yellow	1	1	1
13	0978500	Spring - Front Shoe Lever, red	1		
14	0978600	Spring - Rear Shoe, orange	1	2	2
15	0978800	Pin - Shoe Hold Down, stainless steel	2	2	2
16	0978900	Cup - Shoe Hold Down, stainless steel	4	4	4
17	0979000	Spring - Front Hold Down, yellow	1		
18	0979100	Spring - Rear Hold Down, black	1	2	2
19	2475700	Plug -Adjusting Hole	1	1	1
	0973901	Free Backing Shoe Assembly Complete	1		
20*	0777801184	Retaining Ring, Yellow Dichromate Plated	1		
21 *	1740600	Lock Nut, 5/16 X 18NC	1		
28*	0974300	Travel Link	1		
29*	0794900	Hex Cap Screw, 5/16 - 18NC Grade 5	1		
30*	1256000183	Pin - Front Shoe, Clear Zinc Plated	1		
2*	0973900	Front Shoe	1		
3*	0974500	Shoe Lever	1		
31	0681400	Spring, Free Backing	1		
**1	2473701042	Backplate, Less Anchor Pin	1	1	1
**not shown	0977100	Anchor Pin, Backplate	1	1	1
**not shown	0977200	Flat Washer/Spacer	1	1	1
**not shown	0977300	Lock Washer, 3/4	1	1	1
**not shown	0977400	Hex Nut, 3/4 - 16UNF	1	1	1
not shown	1584500	Wheel Cylinder Repair Kit - Brake Fluid	1		
33	0797200	Hex Nut, 1/2 - 20UNF	4	4	4
34	0795500	Hex Cap Screw, 1/2 - 20UNF X 1 Grade 5	4	4	4
35	0793700	Lock Washer, 1/2	4	4	4

Component of the 0973901 Free Backing Shoe Assembly
Component of the 2473700042 Backplate Assembly



LIMITED WARRANTY

<u>Limited Warranty</u> Titan Tire Corporation (TITAN) warrants its products to be free from defects in material and workmanship for one year from date of delivery to the original purchaser when properly installed, used and maintained by the purchaser.

This warranty does not apply to damage or loss caused by any or all of the following circumstances or conditions:

- Freight damage.
- Parts, accessories, materials or components not obtained former approved in writing by TITAN.
- ☐ Misapplication, misuse and failure to follow the directions or observe cautions and warnings on installation, operation, application, inspection or maintenance specified in any TITAN quotations, acknowledgements, sales literature, specification sheet or installation instructions and service manual ("applicable literature")

If any TITAN products are found upon TITAN's examination to have been defective when supplied, TITAN will either: credit the purchaser's account for the purchase price of the TITAN product; or repair the product. TITAN has sole discretion in choosing which option to provide. For this LIMITED WARRANTY to apply, TITAN must receive notice of the alleged defect within 30 days of either the discovery of the alleged defect or the expiration of the warranty period, whichever is earlier. Any claim not made with in this period shall conclusively be deemed waived.

If requested by TITAN, purchaser shall return the alleged defective product to TITAN for examination at Titan's direction and expense. TITAN will not pay for expenses incurred in returning a product to TITAN without TITAN'S prior written authority. TITAN shall not be liable for any other expenses purchaser incurs to remedy any defect. Purchasers waive subrogation on all claims under any insurance.

<u>Limitation of Liability</u> It is expressly agreed that the liability of TITAN is limited and TITAN does not function as an insurer. THE REMEDIES SET FORTH IN THIS WARRANTY SHALL CONSTITUTE THE EXCLUSIVE REMEDIES AVAILABLE TO THE PURCHASER OR USER AND ARE IN LIEU OF ALL OTHER REMEIDIES, EXPRESS OR IMPLIED. THE LIABILITY OF TITAN, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCT MANUFACTURED, SOLD OR SUPPLIED BY TITAN.

<u>To Obtain Technical Assistance</u> To enable TITAN to respond to a request for assistance or evaluation of customer or user operation difficulty, please provide at a minimum the following information by calling 1-800-872-2327 or within lowa 1-515-265-9200:

- Model number, serial number and all other data on the specific component which appears to be involved in the difficulty.
- The date and from whom you purchased your TITAN product.
- State your difficulty, being sure to mention at least the following: Application, Nature of load involved, and Weight of the load.

<u>Field Service</u> If field service at the request of the purchaser is rendered and the difficulty is found not to be with TITAN'S product, the purchaser shall pay the time and expense (at the prevailing rate at the time of service) of the seller's field representative(s). Charges for service, labor and other expenses that have been incurred by the purchaser, its customer or agent without prior written authorization of TITAN will not be accepted.

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